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SIMIT 7

PRODAVE Gateway

User Manual

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Process Automation

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1 PREFACE

1.1 Target Group

This manual addresses you as a user of the SIMIT simulation system. Here you will get to know how to use and handle a PRODAVE gateway in SIMIT.

As a prerequisite you need to be familiar with the general use of a personal computer and windows. Furthermore, knowledge of both the SIMIT basic system as well as common features of all SIMIT gateways is required, as described in the SIMIT gateways manual. Since PRODAVE is one of SIMITs SIMATIC gateways, you also need to know the common aspects of all SIMATIC gateways, as described in the SIMIT gateways manual.

1.2 Content

Chapter 2 shows how the PRODAVE gateway works and chapter 3 shows how a PRODAVE gateway is configured.

1.3 Symbols

Particularly important information is highlighted in the text as follows:

NOTE

Notes contain important supplementary information about the documentation contents. They also highlight those properties of the system or operator input to which we want to draw particular attention.

CAUTION

This means that the system will not respond as described if the specified precautionary measures are not applied.

WARNING

This means that the system may suffer irreparable damage or that data may be lost if the relevant precautionary measures are not applied.

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2 FUNCTIONING OF THE PRODAVE GATEWAY

You can use the PRODAVE gateway to write and read inputs and outputs within the process image of SIMATIC control with SIMIT.

You can link the PRODAVE gateway to a SIMATIC controller using the MPI interface. If your controller supports Ethernet connections you may also link via Ethernet, which provides higher performance than the MPI interface. In any case please take care that in the SIMATIC Manager the PG/PC interface is configured to the type of connection you chose.

NOTE

To use the PRODAVE gateway with SIMIT you need the SIMATIC software PRODAVE in version 6.1. The PRODAVE software itself is not part of the SIMIT scope of delivery.

You may also need additional hardware, such as MPI adapter or cable. This is also not part of the SIMIT scope of delivery.

The PRODAVE gateway will not simulate any SIMATIC peripherals. The PRODAVE gateway is used in SIMIT to directly access the process image of a SIMATIC controller. The addresses that are actually available depend on how large the process image in your CPU is and what is defined in your hardware configuration.

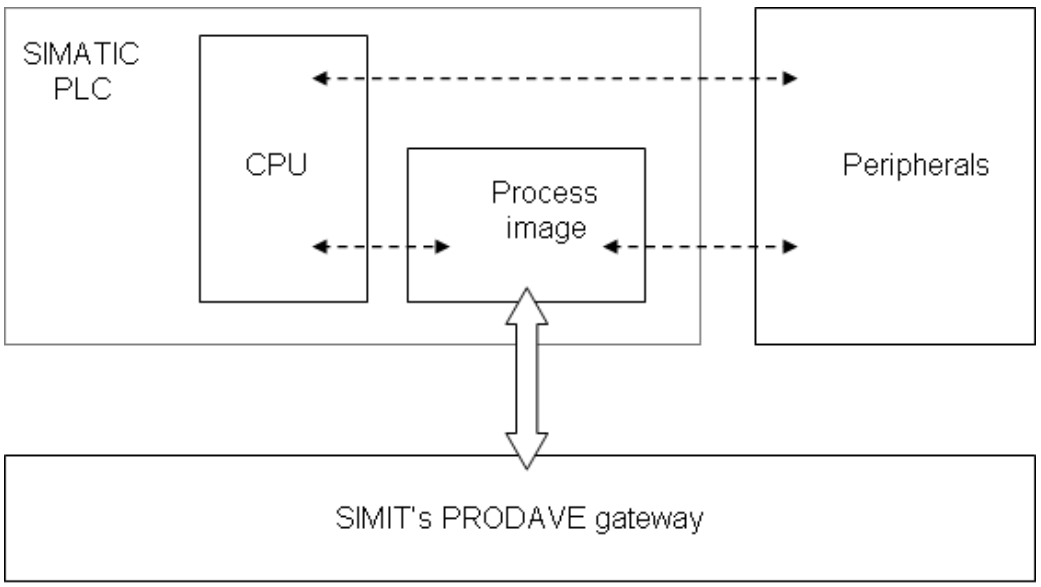

Figure 2-1: Functioning of the PRODAVE gateway

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CAUTION

You must not use peripheral modules in your controller that access the same addresses as your PRODAVE gateway, since this would lead to concurrent access to the process image.

NOTES

If you have configured peripheral modules in your hardware configuration, you can still access their addresses using the PRODAVE gateway, provided that these modules are currently not plugged. This will cause the CPU to produce access errors which can be handled in an appropriate OB in the control program.

Since the PRODAVE gateway can access the process image only, you cannot access signals that are addressed as peripheral signals (*PIW*, *PQW*) in the CPU.

Some SIMATIC controllers, such as CPU 313C, are hard wired with I/O modules which have immutable address ranges. These addresses cannot be accessed via the PRODAVE gateway.

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3 CONFIGURING THE PRODAVE GATEWAY

In this chapter you learn how to configure a PRODAVE gateway.

3.1 Creating a PRODAVE gateway

To add a PRODAVE gateway to your project, use the *New Gateway* command in the project tree. Choose *PRODAVE* as gateway type (see Figure 3-1).

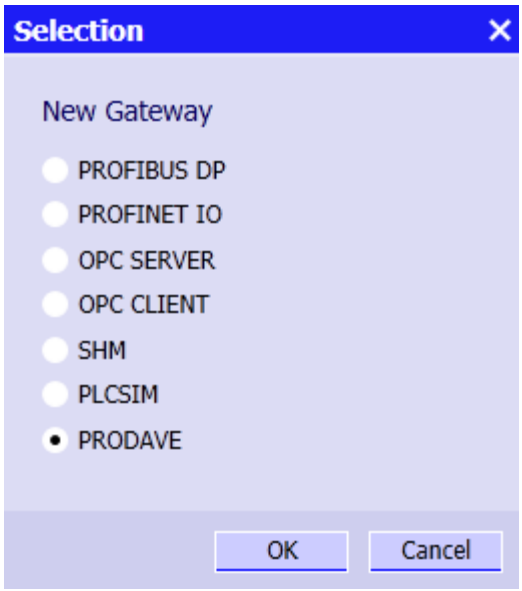

Figure 3-1: Adding a PRODAVE gateway

In the SIMIT project you may assign an arbitrary name to your PRODAVE gateway. To accept the default name, just press *Enter*. The gateway editor will now open automatically. By double clicking the gateway or by using the context menu you can open the editor at any time later (see Figure 3-2).

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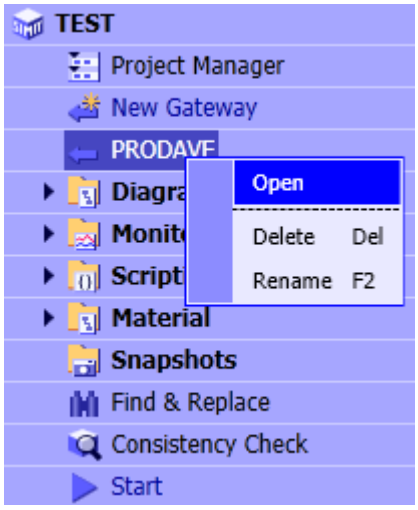

Figure 3-2: Opening the PRODAVE gateway in edit mode

3.2 Configuring I/O signals in the PRODAVE gateway

The input and output signals of the PRODAVE gateway can be edited manually in the editor or can be configured by importing a symbol table from your SIMATIC project (see Figure 3-3).

PRODAVE

Inputs Reset Filter

Default	Symbol Name	Address	Data Type	Comment
	StaircaseButtonFloor0	I32.0	BOOL	Ruf Treppenhaus EG
	StaircaseButtonFloor1	I32.1	BOOL	Ruf Treppenhaus 1.OG
	StaircaseButtonFloor2	I32.2	BOOL	Ruf Treppenhaus 2.OG
	StaircaseButtonFloor3	I32.3	BOOL	Ruf Treppenhaus 3.OG
	StaircaseButtonFloor4	I32.4	BOOL	Ruf Treppenhaus 4.OG
	Mainswitch	I32.5	BOOL	Betrieb Ein
	Reset	I32.7	BOOL	Reset-Taster

Outputs Reset Filter

Symbol Name	Address	Data Type	Comment
StaircaseIndicatorFloor0	Q32.0	BOOL	Rueckmeldung Treppenhaus Ruf EG
StaircaseIndicatorFloor1	Q32.1	BOOL	Rueckmeldung Treppenhaus Ruf 1.OG
StaircaseIndicatorFloor2	Q32.2	BOOL	Rueckmeldung Treppenhaus Ruf 2.OG
StaircaseIndicatorFloor3	Q32.3	BOOL	Rueckmeldung Treppenhaus Ruf 3.OG
StaircaseIndicatorFloor4	Q32.4	BOOL	Rueckmeldung Treppenhaus Ruf 4.OG
InOperation	Q32.5	BOOL	Rueckmeldung Betrieb

Figure 3-3: Configuring the PRODAVE gateway

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3.3 Properties of the PRODAVE gateway

When the gateway is opened you see its editor. The properties view (see Figure 3-4) is used to define properties as follows:

- **Cycle**

  Here you can define the cycle the gateway will use for data exchange. Use the project manager to assign absolute values to the eight available cycles throughout the project. The default value for cycle 2 is 100ms. For further detail concerning a gateways data exchange please see the general SIMIT gateway manual.

- **Mnemonic**

  Here you can choose between international (*I/Q)* and German (*E/A*) syntax of inputs and outputs.

- **CPU Slot**

  Please provide the slot number of your SIMATIC CPU here.

- **Access Mode**

  Choose here whether to use MPI (cable or adapter) or IP (Ethernet) as access mode.

- **MPI Address / IP Address**

  Please provide your SIMATIC CPU's MPI number or IP address here.

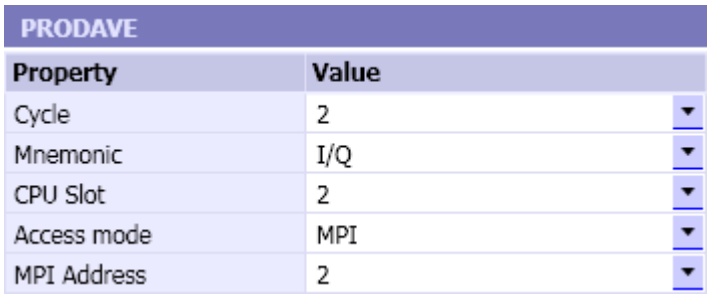

Figure 3-4: Properties of a PRODAVE gateway

3.4 Importing the symbol table

When importing a symbol table you can decide how signals should be handled that exist in the gateway already. There are three alternatives available:

- **New**

  All signals that exist in the gateway already are removed. The gateway is newly built based on the imported symbol table.

- **Add**

  If a signal has a symbolic name specified in the imported symbol table but has no symbol name in the gateway yet, it is assigned the symbol name as specified in the symbol table. Symbol names that exist in the gateway already are not overwritten!

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If there is a signal in the imported symbol table that overlaps with signals that exist in the gateway already because they share an address range, it will be ignored. There is no merging or splitting of signals. A signal is added to the gateways signals only if there is no overlap with existing signals.

- **Replace**
  If a signal exists in the gateway already and has a symbolic name specified in the imported symbol table, it is assigned the symbol name as specified in the symbol table, even if it had a symbol name assigned in the gateway already.

  If there is a signal in the imported symbol table that overlaps with signals that exist in the gateway already because they share an address range, it will be taken into the gateway configuration and all overlapping signals will be removed.

To show these procedures, assume a gateway exists with signals as specified in Figure 3-5.

Symbol Name	Address	Data Type
	I0.0	BOOL
S_I0.1	I0.1	BOOL
	IB2	BYTE
S_IB4	IB4	BYTE
	IW10	WORD
S_IW12	IW12	WORD

Figure 3-5: Example for gateway signals

The imported symbol table contains the following signals:

```
Symbol_I0.0      I0.0
Symbol_I0.1      I0.1
Symbol_I10.0     I10.0
Symbol_IW2       IW2
Symbol_IW14      IW14
```

Importing this symbol table yields different results depending on the option chosen.

Figure 3-6 shows the gateway after import using the option *New.*

Symbol Name	Address	Data Type
Symbol_I0.0	I0.0	BOOL
Symbol_I0.1	I0.1	BOOL
Symbol_I10.0	I10.0	BOOL
Symbol_IW2	IW2	WORD
Symbol_IW14	IW14	WORD

Figure 3-6: Signals after import using option *New*

Figure 3-7 shows the gateway after import using the option *Add.* Signals IW2 and I10.0 were not taken since they overlap with IB2 and IW10 respectively.

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Symbol Name	Address	Data Type
Symbol_I0.0	I0.0	BOOL
S_I0.1	I0.1	BOOL
	IB2	BYTE
S_IB4	IB4	BYTE
	IW10	WORD
S_IW12	IW12	WORD
Symbol_IW14	IW14	WORD

Figure 3-7: Signals after import using option *Add*

Figure 3-8 shows the gateway after import using the option *Replace*. Signals IB2 and IW10 were removed and were replaced by overlapping signals IW2 and I10.0.

Symbol Name	Address	Data Type
Symbol_I0.0	I0.0	BOOL
Symbol_I0.1	I0.1	BOOL
Symbol_IW2	IW2	WORD
S_IB4	IB4	BYTE
Symbol_I10.0	I10.0	BOOL
S_IW12	IW12	WORD
Symbol_IW14	IW14	WORD

Figure 3-8: Signals after import using option *Replace*

NOTE

In contrast to input signals, overlapping output signals are allowed.

However, when importing a symbol table, overlapping signals are treated equally, no matter whether input or output signals are concerned.

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